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Visual Studio 2010 Load Testing Overview

The following is a brief overview of performing a basic load test using Visual Studio 2010 Ultimate:

Launch Visual Studio 2010 Ultimate:



Select File -> New Project:





Select under Visual C# -> Test -> Test Project -> name the project and click OK:

New Project				
Recent Templates		.NET Framework 4 Sort by: Default	-	Search Installed Templates
Installed Templates				Type: Visual C#
 Visual Basic Visual C# Windews Web Othice Cloud Reporting SharePoint Silverlight Test WCF Workfow Visual C++ Visual C++ Other Project Type Database Modeling Projects Test Projects 	5	Test Project	Visual C#	A project that contains tests
Name:	TestProject1			
Location:	c:\users\oneillkr	n\documents\visual studio 2010\Projects	•	Browse
Solution name:	TestProject1			 Create directory for solution Add to source control
				ОК

Click OK if this message displays – in this case I had already existing Tests cached:





In this case we are going to perform a simple web performance test – so thus click the Unittest1.cs and delete it:





Right mouse click the Project and select Add -> Web Performance Test:

			TraceAndTestImpact.testsettings				
			IestProj Prop		Build		
			D 🔤 Refer		Rebuild		
					Clean		
					Run Code Analysis		
					Calculate Code Metrics		
	8	New Test			Add	•	
	1	New Item	Ctrl+Shift+A		Add Reference		
	:::	Existing Item	Shift+Alt+A		Add Service Reference		
	Ľ	New Folder		æ,	View Class Diagram		
	8	Unit Test			Set as StartUp Project		
0000000000	1	Load Test			Debug	•	
		Web Performance Test		1	Add Solution to Source Control		

At the browser window that comes-up the Record will already be selected – therefore go to the web application and perform the desired functionality that is to be tested – when done – click Stop:





Now we will run a load test against the web performance test that was created. Therefore right mouse click the project and select Add -> Load Test:



A wizard comes up – and therefore read each option carefully – at the first screen after reading the information click Next:

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New Load Test Wizard

New Load Test Wizard		y X
Welcome to the C	reate New Load Test Wizard	
Welcome Scenario Load Pattern Test Mix Model Test Mix Network Mix Browser Mix Counter Sets Run Settings	This wizard will walk you through the steps to create a load test that contains: A load test scenario to which you will add tests. A load pattern, test mix, browser mix and network mix. Counter sets for target computers from which you will collect performance data. Run settings such as the duration of your test and a description. When you have completed the wizard and clicked Finish, a load test is generated in the test project. You can add additional scenarios and edit the test in the Load Test Editor. For more information press F1 to select a related Help topic. Click Next to proceed. <a a="" href="https://www.com" www.com<=""> Click Next to proceed.	Cancel



One can name the load test scenario and select the desired think time profile – when done click Next:

New Load Test Wizard	
Edit settings for a	load test scenario
Welcome Scenario Load Pattern Test Mix Model Test Mix Network Mix Browser Mix Counter Sets Run Settings	Enter a name for the load test scenario: Scenario: Think time profile Use recorded think times Use normal distribution centered on recorded think times Do not use think times Do not use think times Inink time between test iterations: Seconds < Previous Next > Finish Cancel



The user count can be entered and when done click Next:

New Load Test Wizard						? X
Edit load pattern s	ettings for a load test scenario					
Welcome Scenario Load Pattern Test Mix Model Test Mix Network Mix Browser Mix Counter Sets Run Settings	Select a load pattern for your simulate Constant Load: User Count: Step load: Start user count: Step duration: Step user count: Maximum user count: 2	1 load: 25 m users 10 m users 10 m seconds 10 m users/step 20 m users				
			< Previous	Next >	Finish	Cancel



A test mix can then be selected if desired – in this case the default settings were selected:

New Load Test Wizard		? ×
Select a test mix r	nodel for the load test	
Welcome Scenario Load Pattern Test Mix Model Test Mix Network Mix Browser Mix Counter Sets Run Settings	How should the test mix be modeled? Based on the total number of tests Based on the number of virtual users Based on user pace Based on sequential test order	This model of test mix determines which test is run when a virtual user starts a test iteration. At the end of the load test, the number of times that a particular test was run matches the assigned test distribution. Follow this model when you are basing the test mix on transaction percentages in an IIS log or in production data.
		< Previous Next > Finish Cancel



At the 'Add tests to a load test scenario and edit the text mix' Wizard screen – select Add:

New Load Test Wizard					? ×
Add tests to a load	test scenario and edit the test mix				
Welcome	Add one or more tests to the mix:				
Scenario	Test Name	%	Distribution	3	Add
Load Pattern Test Mix Model	_click 'Add' to add test				Remove
Test Mix				+	Distribute
Network Mix					
Browser Mix					
Counter Sets					
Run Settings					
	Total	0			
	< Previor	us N	Next > Finis	h	Cancel



Select the desired test that is desired and select the arrow to move it to be a selected test – then click OK:

Add Tests				? ×
(i) 0 test(s) added				
Select test list to view:		Selected tests:		
/All Loaded Tests	•	Test Name	Project	ID
Available tests:				
Test Name Project	ID			
😰 WebTest1 TestProject1	c:\use			
	<			
•	•	٠	11	Þ
			ОК	Cancel



Notice that once added with success the 0 test(s) added is now 1 test(s) added – click OK:

Add Tests	? ×
(i) 1 test(s) added	
Select test list to view:	Selected tests:
/All Loaded Tests 🗸	Test Name Project ID
	WebTest1 TestProject1 c:\usi
Available tests:	
Test Name Project ID	
4 III	4
	OK Cancel



Click Next

New Load Test Wizard					? ×
Add tests to a load t	est scenario and edit the test mix				
Welcome	Add one or more tests to the mix:				
Scenario	Test Name	%	Distribution	3	Add
Load Pattern	1 WebTest1	100			Remove
Test Mix Model					
Test Mix					Distribute
Network Mix					
Counter Sets					
Run Settings					
				\square	
	Total	100			
	< Previou	us N	lext > Finish		Cancel



At the 'Add network types to a load test scenario and edit the network mix' – select your desired choice – in this case Dial-up 56K Modem was selected – then select Next:

New Load Test Wizard					? X
Add network types	to a load test scenario and edit the network mix				
Welcome	Add one or more network types to the mix and specify a distribution:				
Scenario	Network Type	%	Distribution	8	Add
Load Pattern	1 LAN 🗸	100	0		Permoure
Test Mix Model Test Mix Network Mix Browser Mix Counter Sets Run Settings	LAN 3G Cable-DSL 1.5Mbps Cable-DSL 384Kbps Cable-DSL 768Kbps CDMA Dial-up 56k Modem Intercontinental slow WAN 300 Kbps Intercontinental WAN 1.5 Mbps Intra-continental WAN 1.5 Mbps Intra-continental WAN 1.5 Mbps Total	100			Distribute
	< Previo	us N	lext > Finish		Cancel



At the 'Add browser types to a load test scenario and edit the browser mix' select the desired Browser Type – in this case – Internet Explorer 8 was selected then select Next:

New Load Test Wizard				2 ×
Add browser types	to a load test scenario and edit the browser mix			
Welcome	Add one or more browser types to the mix and specify a distribution:			
Scenario	Browser Type	%	Distribution	Add
Load Pattern	1 Internet Explorer 7.0 🗸	100		Remove
Test Mix Model Test Mix Network Mix Browser Mix Counter Sets Run Settings	Internet Explorer 7.0 Chrome 2 Firefox 2.0 Firefox 3.0 Internet Explorer 5.5 Internet Explorer 6.0 Internet Explorer 8.0 Netscape 6.0 Pocket IE 3.02 Safari 3 Safari for iPhone Smartphone			Distribute
	Total	100		
	< Previo	us N	Vext > Finish	Cancel



At the 'Specify computers to monitor with counter sets during load test run' – in this case Next was selected – however if so desired counter sets could be set-up and run:

New Load Test Wizard		? <mark>×</mark>						
Specify computers to monitor with counter sets during load test run								
Welcome Scenario	Selected computers and counter sets will be added to the default run settings							
Load Pattern	Computers and counter sets to monitor:	Preview selections:						
Test Mix Model		Controller Computer						
Test Mix								
Network Mix		Agent Computers						
Browser Mix		Agent						
Counter Sets								
Run Settings								
	Add Computer Remove Computer Tage	s:						
	< Previo	us Next > Finish Cancel						



At the 'review and edit run settings for a load test' under Load test duration 1:00 was entered then Finish selected:

New Load Test Wizard	2	x
Review and edit m	run settings for a load test	
Welcome	Specify the length of the load test by:	
Scenario Load Pattern	● Load test duration Warm-up duration (hh mm ss):	
Test Mix Model Test Mix	Run duration (hh mm ss):	
Network Mix Browser Mix	Test iterations	
Counter Sets	Details	
Run Settings	Sampling rate: 5 seconds	
	Description:	
	Save Log on Test Failure: True	
	Validation level: High - invoke all validation rules	•
	< Previous Next > Finish Cancel	



Select the Run Test found under the .loadtest that was created:



Eventually a Graph view of the test is displayed and one can view the desired format – by selecting the Tables tab if so desired :

LoadTest1 [7:21 PM] × LoadTest1.loadtes	t W	cbTestLa	vebtest	Test Lis	t Edito	r Source	Contro	Explorer															-
Stop Graphs 🕮 Tables 🗒 🖻 🗄 - 🏂 🖄 🗶 🖀 - 😰																							
(i) Test in progress	Test in progress. Warro Up Remaining: 00:15																						
Counters		Key Ind	cators								•	Page Re	sponse Time										-
iu i Overali 😨 🔤 Scenariol 🗑 🐼 Computers		500		مر								50.0											
🗉 🥅 Errors		00.00	010	00.20 00.30	00.40	00.50 01.00	01 10	0120 0130	01.40	01.50 0	2.00	00.00	00.10 00.20	00.30	00.40	00.50	01.00	0110	01.20	01.30	01.40	0150	02.00
		System	under T	est							•	Control	er and Agent	,									•
		50.0										50.0											
Overview		0000	0010	00:20 00:30	00:40	00:50 02:00	01:20	01/20 01:50	0140	02:50 0	200	0000	0010 0020	00:30	00.40	00:50	01:00	01:10	01:20	01:30	01:40	01:50	02:00
Configuration	•	Counte	r			Instance	Ca	ategory	Con	nputer		Color	Range		Min		Max		Avg		Las	t	
Controller Local run Sampling Rate 00:05	E	- 1	Key Indi	cators																			-
a Requests		1	el User I 2 Decem	Load (See		_Total	Lo	adTest:Scena adTest:Daga	ni PI-W	7-ONELL	KM -		- 10		2		8		5		8		_ =
Total Requests 0			el Avn I	Ane Time		Total	Lo	adTest-Page	PI-W	7-ONEILI	KM -		- 0		-								
Requests/Sec 0	-		Errors	/Sec		Total	Lo	adTest:Errors	PI W	7 ONEILI	KM -	-	- 0		0		0		0		0		



This shows the table view:

LoadTest1 (7:21 PM) 🛛 🗙	LoadTestLloadtest	WebTest1.web	iest Test List Edit	or Source	e Control Explorer					-
Stop M Graphs	📅 Tables 🔡 🚧	∃• <i>₫</i> ⊠×	i 🛛 = 🕹							
A Test in progress	12 threshold violatio	105							Remaining: 09:08	
Countrys Test										
📧 🚮 Overall		Test	Scenario	Total	Passed	Failed	Tests/Sec	Test Time	Last Test Time	
🔟 📶 Scenario1		WebTest1	Scenario1	60,032	60,032	0	546	0.00027	0.00009	
🕞 🍓 Computers										
🖅 🔛 Littors										
		Imors								•
Overview		lype	Subtype	Count	Last Message					
. Configuration		Total		<u>0</u>						
Controller	local nun	<u> </u>								
Sampling Rate	00:05	=								
a Requests										
Total Requests	0									
Requests/Sec	0	-								
Test Results										۲ + -

In either view the Errors tree can be selected and the desired items can be viewed:



Additionally – from the .loadtest tab – the Open and Manage results can be selected:





One would then select the desired loadtest and click Export:

3/7/2012 2:23 PM	00:05:00	Compl	LoadTest1	Remove
				Import
				Export

The results can be saved as a .ltrar file:

File name:	
Save as type:	Load Test Results Archive(*.ltrar)
) Hide Folders	Save Cancel

After naming the file and clicking Save – the following is displayed:

Exporting Load Test Runs	×
Exporting load test run(s) to a load test run archive	
	Cancel

The results can then be viewed later if needed.